● $M(x, y, z) \in P \cap Q \cap R$

$$\Leftrightarrow \begin{cases} 2x - y + z - 3 = 0 \\ x + 2y + z - 1 = 0 \quad (1) \\ 3x + y - z + 2 = 0 \quad (2) \\ \qquad\qquad\quad (3) \end{cases}$$

$(1) + (2) - (3) \Rightarrow 3z - 6 = 0 \Rightarrow z = 2$

$(1) + (3) \Rightarrow 5x - 1 = 0 \Rightarrow x = \frac{1}{5}$

Dans (1) on a : $y = 2x + z - 3 = \frac{2}{5} + 2 - 3 = \frac{-3}{5}$

Finalement :

$$P \cap Q \cap R = \{M(\tfrac{1}{5}, \tfrac{-3}{5}, 2)\}$$

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